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Notice of Allowability

Application No.

10/606,064

Examiner

Joseph E. Avellino

Applicant(s)

MAUFER ET AL.

Art Unit

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment dated 11/5/07.
2. ☒ The allowed claim(s) is/are 1-10 and 29-41.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date: _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date: _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 8/28/07
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

[Signature]
S. AVELLINO

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Please amend the title to read: Fragment Processing using Cross-Linked Tables

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The prior art of record does not provide for, nor suggests providing for a system located in a firewalled device which stores received fragments in association with the packet and in order in a connection table and a network address translation table, cross linking the NT and CT by storing a hash of at least a portion of the fragments in the NT and CT tables, reassembling the fragments, storing an address research table for a first packet of a connection in association with the NT and CT and hashing each of the subsequent packets to determine a table entry to forward the packet and then transferring the packet to the firewalled device to apply firewall policies to the entire packet at one time. Rather than having one large state table for Connection table 600 and NAT table 700 information, two linked state tables are used to conserve memory. The NT is enabled to

Art Unit: 2143

allow Network Address translation in the firewalling device, and the CT is used for tracking TCP state. Indices are computed for each CT and NT entry and an ART index is stored in each of the NT tables and CT tables for each entry. Indices are computed by hashing the five-tuple entry. Each NT entry is cross-linked with a corresponding CT entry, and each CT entry is cross-linked with a corresponding NT entry. CT and NT each store links to ART table via an Art index 601. ART table stores information associated with delivery of packet 101 such as MAC address and other MAC-layer attributes like MAC Address, VLAN ID, and an Interface Mask. Figures 6-8 show the format of a CT entry, an NT entry, and an ART entry. Each CT and NT index has an ART index 601, and the CT entry holds information regarding the TCP state of the connection. NT index holds information regarding address translation. Each has an index to the other table 606 and 706, to thereby save computation power by following the index rather than computing another hash value to the other tables. For these reasons, in conjunction with the other limitations of the independent claims, puts this case in condition for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Information Disclosure Statement

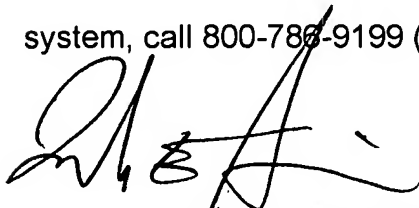
Art Unit: 2143

2. The IDS dated August 28, 2007 has been considered. See enclosed PTO-1449.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph E. Avellino whose telephone number is (571) 272-3905. The examiner can normally be reached on Monday-Friday 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Joseph E. Avellino, Examiner
November 19, 2007